

**Notice of Allowability**

Application No.

10/524,981

Applicant(s)

VAN DER SLUIS ET AL.

Examiner

Paul A. Budd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 25 July 2007.
2. ☒ The allowed claim(s) is/are 16-23 and 25-31.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

***Response to Amendment***

1. Claims **16-23** and **25-31** are currently pending in the instant application. Newly added claims **25-31** are accepted and no new matter is entered. The amendments to claims **16** and **19** are accepted and no new matter is entered. The 112(2<sup>nd</sup>) rejection of claim **20** is withdrawn based on the amendment to claim **16**.

**EXAMINER'S AMENDMENT**

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows: Please change the title of the application from, "Ferroelectric device and method of manufacturing such a device" to - - Method of Manufacturing a Ferroelectric Device - -.

***Allowable Subject Matter***

3. Claims **16-23** and **25-31** are allowed. The following is an examiner's statement of reasons for allowance: Claim **16** is allowable because an "oxygen-free ferroelectric material" is used in combination with "applying a barrier layer directly to the source or drain region" and "applying a conductive layer directly to the barrier layer". The use of an oxygen-free ferroelectric material is untypical in the prior art. An example of an oxygen containing ferroelectric memory with the required barrier layer and conductive

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layer is (US 6,313,491 or US 6,210,797), and an example of an oxygen free (BaMgF<sub>4</sub>) ferroelectric memory was (US P 2002/0155662). The Schottky junction was also not taught by either reference. Any combination of these art was considered non-obvious because of different motivations for providing a barrier layer (i.e. what is being prevented from diffusing).

Claim **25** is allowed because the limitation "the ferroelectric layer is formed by converting part of a conductive layer to the ferroelectric material, one of the connection conductors being formed by the remaining part of the conductive layer" in conjunction with all the "remaining limitations" of claim **25**. The prior art of record (US 5,303,182, US 5,965,942) anticipated the "remaining limitations" but did not teach all of claim **25**'s limitations.

US Patent 5,512,773 while relevant did not teach an oxygen-free ferroelectric material and thus did not anticipate the instant application.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### ***Response to Arguments***

4. The Office agrees with the applicant regarding the allowability of newly added claims **25-31**. The applicant had stated that claims **26-31** were allowable, however it is

clear that claims **26-31** are allowable because of their dependency on allowable independent claim **25**.

The Office agrees with the applicant that the Nakao reference (US 5,303,182) does not anticipate the applicant's amended claim **16** or newly added claim **25**.

The Office also agrees with the applicant that the Itoh reference (US 5,303,182) does not anticipate the applicant's amended claim **16** or newly added claim **25** for the reasons (**16** = barrier layer directly to source or drain region and applying a conductive layer to the barrier layer; **25** = see above) the applicant has stated in his reply dated 25 July 2007.

The Office also agrees with the applicant that claim **23** was NOT withdrawn from consideration and that claim **24** was the intended withdrawn claim. The Office appreciates the applicant's attention to details.

### ***Conclusion***

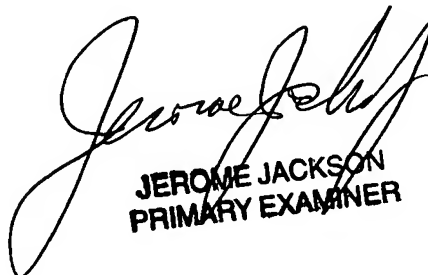
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Budd whose telephone number is 571-272-8796. The examiner can normally be reached on Monday to Friday 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PAB



**JEROME JACKSON  
PRIMARY EXAMINER**